DEFENSE INFORMATION INFRASTRUCTURE (DII)

COMMON OPERATING ENVIRONMENT (COE)

**Installation Instructions
for
CALC Application Segment v1.0.0.1 (Solaris 2.5.1)**
3/31/97

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1.0 INTRODUCTION

The ReleaseNotes contain a description of the sample CALC application, installation, verification and startup procedures. The CALC application is a Logicon developed sample application which uses the simplified DCE API's. The segment's intent is to support the development environment.

2.0 OVERVIEW

The Calculator Application is an example of how to use the simplified DCE API library. The CALC application is intended to support the DCE development environment and consists of one IDL interface with two functions (add and subtract). Separate permissions are defined for each function. The acl manager is used to control access to each of the functions. The cell or security administrator is responsible for maintaining the access controls to the interface.

The client implements two different methods for locating a server (chose by a #IF statement in the CALCclient.c routine). The 'simple' method selects any available server. The 'complex' method identifies and retrieves information about each server, to demonstrate how server attributes can be used to select a server. The sample application only demonstrates the simple method.

Each installed server has its own acl manager. Therefore it is possible to have a user which has add and subtract privileges to one server and only add privileges to a different server.

3.0 ENVIRONMENT

A fully functional DCE cell must be present to ensure a successful installation of the CALC segment.

4.0 INSTALLATION INSTRUCTIONS

There are several steps which must be performed before the segment is installed. The segment application requires a non login Unix account called CALC (do not assign a password). The group can be CALC or any other Unix group.

Step 1:
Use the COE procedures to add a new account to the Unix system called CALC.

Step 2:

With Solaris 2.4 operating system, the security policies may need to be changed before installation. By entering the command:

```
dcecp> registry show -pol
        {acctlife unlimited}
        {maxtktlife +0-06:00:00.000I-----}
        {maxtktrenew +28-00:00:00.000I-----}
        {pwdalpha no}
        {pwdexpdate none}
        {pwdlife +180-00:00:00.000I-----}
        {pwdminlen 8}
        {pwdspaces no}
```

the security policies for the registry should be displayed. For Solaris 2.4, {pwdalpha} is set to no as a default. This should be changed to yes in order to make installation possible.

```
dcecp> registry modify -pwdalpha yes
```

Step 2:

Use the Segment Install option from the pull down menu as identified in the COE System Admin Guide. This will initialize the PostInstall Script and start the process shown below.

The installation consists of 3 parts. The first (1) part, "Install CALC app" is only performed once in a cell. If you are not sure if this step has been performed before, you can used **dcecp** and execute the following command:

```
dcecp> group cat
        /.../acom.smil.mil/CALC-servers
        /.../acom.smil.mil/CALC-users
        /.../acom.smil.mil/CALC-admin
```

These groups are created during the initial installation of the CALC application. The CALC-users group consists of the principal who are permitted to activate the CALC client process. The CALC-admin group consists of the principals permitted to activate the CALC server process. The CALC-servers group has only one member, the CALCserver account, also created during the initial installation.

Part 2, "Install CALC server", performed for any machine that will be a server for the application. This software can be installed on a DCE Client or a DCE Server.

Part 3, "Install CALC client", is performed for any client that requires access to a server that is handling the CALC application. This software can be installed on a DCE Client or a DCE Server.

4.1 PostInstall Script

The following steps must be performed:

        Install CALC app
        Install CALC server
        Install CALC client

The CALC server and client require that the CALC app be present in the cell before they are installed. After installing the CALC app, the server and client can be installed in any order. The client may be installed before the server. However in order to use the CALC application, both the server and client must be installed within the cell.

Use the following example to guide you in your installation.

4.1.1 Install CALC application

```
   Installation Options
---------------------------
     1) Install CALC app
     2) Install CALC server
     3) Install CALC client
     4) Quit

Enter the type of Installation you require: 1

Installing CALC app

Performing Application Installation

Please enter the organization name for the server or <CR> for 'none'.
```

        As the cell administrator you can use any organization that is in
        your cell. Since organization none is in every cell it was made
        the default.

```
        You will be required to login using the DCE identity: cell_admin
        When adding a server, login will be necessary twice
        Press <CR> to acknowledge or CNTRL-C to quit

Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
directory create /.:/h -> Specified full name already exists
```

        This directory create message will only appear if you install the
        segment more than once. This is because it creates the /.:/h directory
        and does not delete during DEINSTALL. It doesn't delete the /.:/h

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directory is the standard location for the software in CDS. Deleting
the h directory would also delete all subdirectories.

organization create $orgname -> Name already exists
This error is correct. The example used none as the group. Since
every cell has a group none it is informing the user that the group
already exists.
Performing per-host installation as cell_admin
Finished privileged install script
Performing per-host installation as

Before the information is erased from the screen a continue message is
displayed. Press OK to return to the main menu.

4.1.2 Install CALC server

This is done on any machine that you wish to place a server on. It is alright
to have multiple servers for the application within the cell. If you type in an incorrect
password or installation option the install script will returns you to the
install options as show below.


```
    Installation Options
---------------------------
     1) Install CALC app
     2) Install CALC server
     3) Install CALC client
     4) Quit

Enter the type of Installation you require:

wrong choice - try again
```

There is a pause when you type in an incorrect entry.


```
    Installation Options
---------------------------
     1) Install CALC app
     2) Install CALC server
     3) Install CALC client
     4) Quit

Enter the type of Installation you require: 2


Installing CALC server
A UNIX idname is required
Enter the name of the account under which the server will run.
```

CALC

Performing Server Installation

Please enter the organization name for the server or <CR> for 'none'.

You will be required to login using the DCE identity: cell_admin
When adding a server, login will be necessary twice
Press <CR> to acknowledge or CNTRL-C to quit

Error in getting initial login context.
Using ID: CALC (uid 500 and gid 1) for server
The software searches the /etc/passwd file for the existence of
the CALC account. If it is not there it will tell you. You must
add this account to the password file for the installation
to be successful. Future releases will work around this
problem.
Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
principal delete $_h/${SEGMENT}server -> Registry object not found
This error is normal during the first time installation of this
option. It is trying to delete the account before it is added.
If this account is the first time it has been installed the object
won't be found and will generate an error message as shown.
Please re-enter the cell_admin password for use in account creation
Enter Your Password:
Performing per-host installation as cell_admin
Finished privileged install script
Performing per-host installation as
Setting up server application
Building keytab
Randomizing keytab skipped
Building CALCserver
Modifying CALCserver

4.1.3 Install CALC client

The client piece is installed on any system wishing to communicate with the
server.

Installation Options
----
1) Install CALC app
2) Install CALC server
3) Install CALC client
4) Quit

```
Enter the type of Installation you require: 3


Installing CALC client

Performing Client Installation

      You will be required to login using the DCE identity: any
      When adding a server, login will be necessary twice
      Press <CR> to acknowledge or CNTRL-C to quit

Error in getting initial login context.
Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
Performing per-host installation as cell_admin
Finished privileged install script
Performing per-host installation as
Setting up client application
```

After completing the client installation select option 4 to exit the script.

```
    Installation Options
---------------------------
      1) Install CALC app
      2) Install CALC server
      3) Install CALC client
      4) Quit

Enter the type of Installation you require: 4
```

4.1.4 Assign Icons and Menu Items

There are icons and pull-down menus available to start the CALC client and CALC server. The menu items are already available. All that one needs to do is log out and log back in to allow the changes to be made to the pull-down menu at the top of the screen. The icons have to be assigned to a user's profile before they can be used. To do this, you are first required to log out and log back in as the Security Manager. Activate the Application Manager and open the DII_APPS folder and then the SSO_Default folder. Under SSO_Default, activate the Security Manger application. Select <File> and then <Profile>. When the Profiles window opens, select <Profile> then <Assign Applications>. When the new window opens, enter an appropriate Profile. The profile should belong to the System Administrator Account Group (like SA_Default) You will see "Start CALC client" and "Start CALC server" appear under Available Applications. Select these two icons to assign them to your profile and then select <OK> to acknowledge the

new assignment. Exit the Security Manager and log out. When you log back in as the System Administrator, the icons should be present in the Application Manager under DII_APPS and SA_Default (or whichever profile was chosen).

4.1.5 Verify Installation

It may be necessary to verify that the CALC application segment is correctly installed. The best way to confirm the installation is to search the DCE registry for accounts that are created upon installation.

By entering the command:

> borg#> **dcecp -c principal catalog**

The names of the various DCE principals will be listed. This principal should be among them:

> **/.../acom.smil.mil/hosts/borg/CALCserver**

Entering the command:

> borg#> **dcecp -c server catalog**

The following servers should be present:

> **/.../acom.smil.mil/hosts/borg/config/srvconf/CALCserver**
> **/.../acom/smil.mil/hosts/borg/config/svrconf/CALCclient**

Enter the following command:

> borg#> **dcecp -c group catalog**

This will list all of the DCE groups in the cell. The CALC segment should have created:

> **/.../acom.smil.mil/CALC-servers**
> **/.../acom.smil.mil/CALC-users**
> **/.../acom.smil.mil/CALC-admin**

5.0 STARTUP INSTRUCTIONS

The startup procedures are used to initialize the aclmanager. The first time you start the CALC server process it will create several files owned by user CALC. In order to start the CALC server process, the user must be part of the DCE group CALC-admin. It is possible to allow others to activate the CALC server. The permissions on the CALC.tab file are 750 (rwxr-x---). By relaxing these permissions, anyone may start the server. In order to start the CALC client process, the user must be a part of the CALC-users.

The first step in the startup procedures is to add users to the apporpriate groups. First log in as cell admin

```
borg#> dce_login <username>
Enter Password: <password>
```

To add a user to the CALC-users group enter:

```
borg#> dcecp -c group add CALC-users -member <username>
```

To add a user to the CALC-admin group enter::

```
borg#> dcecp -c group add CALC-admin -member <username>
```

To start the server, first dce_login as a member of the CALC-admin group and change directories to /h/CALC/bin:

```
borg#> dce_login <username>
Enter Password: <password>
borg#> cd /h/CALC/bin
borg#> ./CALCserver
```

To start the client, go to a different window, dce_login as a member of CALC-users and change directories to /h/CALC/bin.

```
borg#> dce_login <username>
Enter Password: <password>
borg#> cd /h/CALC/bin
borg#> ./CALCclient

Operation: (op val1 val2) <this is the prompt you will see>
Operation: (op val1 val2) + 2 2
2 + 2 = 4
Operation: (op val1 val2)

To exit the client type the following:
Operation: (op val1 val2) q 1 1
borg#>
```

There are pull-down menu items and icons that will start the CALC server and CALC client. To access the pull-down menu items, select <Network> then <DCE> and then <CALC>. You will see <Start CALC Server> and <Start CALC Client>. The icons are found in the Application Manager under DII_APPS under the SA_Default folder (or another folder depending on which profile they were assigned). When selected, both the icons and the menu items will open a new window and prompt the user for a DCE login. This login identity will be used to start the selected process. You must still be part of the appropriate group to have permission to start the process.

6.0 DEINSTALL INSTRUCTION

The DEINSTALL script is used to remove the CALC application from the system. It is important to understand that the script removes all information from the CDS namespace, security registry and host config. The final step of the DEINSTALL is to physically remove the files from the system.

6.1 DEINSTALL Script

From the pull down window of the COE titled Software select the Segment Install option. The Installer window is displayed. Select from the window the DCE Application Segment. The entry and the DEINSTALL option are highlighted. It was stated earlier that the client and server processes depended on the presence of the CALC app. This is still true even during deinstallation. The CALC app should be the last process deinstalled.

6.1.1 Remove CALC client

```
     DEINSTALL Options
--------------------------
     1) Remove CALC app
     2) Remove CALC server
     3) Remove CALC client
     4) Quit

Enter the type of removal you require: 3

Removing CALC client

Performing Client Removal


     You will be required to login using the DCE identity: any
     Press <CR> to acknowledge or CNTRL-C to quit

Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
Done.
```

6.1.2 Remove CALC server

```
     DEINSTALL Options
--------------------------
     1) Remove CALC app
```

```
     2) Remove CALC server
     3) Remove CALC client
     4) Quit


Enter the type of removal you require: 2


Removing CALC server


Performing Server Removal



     You will be required to login using the DCE identity: cell_admin
     Press <CR> to acknowledge or CNTRL-C to quit

Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
Done.
```

6.1.3 Remove CALC app

```
     DEINSTALL Options
--------------------------
     1) Remove CALC app
     2) Remove CALC server
     3) Remove CALC client
     4) Quit


Enter the type of removal you require: 1


Removing CALC app


Performing Application Removal



     You will be required to login using the DCE identity: cell_admin
     Press <CR> to acknowledge or CNTRL-C to quit

Beginning privileged operations
Login as cell_admin
Enter Password:
Cleaning up any previous installation.
Done.



     DEINSTALL Options
--------------------------
     1) Remove CALC app
```

```
    2) Remove CALC server
    3) Remove CALC client
    4) Quit
```

Enter the type of removal do you require: 4

There may be some warning messages during Deinstallation. Reference the Troubleshooting
Section for details.

7.0 TROUBLESHOOTING

This section is to assist a developer in resolving any problems that may be encountered during
installation.

7.1 DCE Integrity Error

This particular error occurs sparadically. The exact problem has not been identified. To resolve
this problem just reinstall the CALC server portion. The second time the server install portion of
the script is run it will correctly create the account. The error fails to create the CALCserver
account in the Security Registry.

7.2 Deinstallation Warnings

During deinstallation the user may receive warning messages regarding the CALC client and
CALC server icons. These warnings are minor and can be easily handled. They result from the
icon entries being removed from the main icon file but they are not automatically removed from
the Security Database. As a result, the user may receive the following message during
deinstalltion:

The following entries appear in the database only:

Applabel => Start CALC Client
**   Acctgroup => System Admin**
**   Scope => LOCAL**

Applabel => Start CALC Server
**   Acctgroup => System Admin**
**   Scope => LOCAL**

Do you wish to delete these entries from the database? (Y/N)

Enter 'Y' to allow the system to purge these stray entries from the database. You will receive the
following response :

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```
Do you wish to delete these entries from the database? (Y/N)
Y


Deassigning App From Profile :
    Profilename  => SA Default
    Profilescope => LOCAL
    Applabel     => Start CALC Client
    Acctgroup => System Admin
    Status    =>  0

Deleting Application Data :
    Applabel  => Start CALC Client
    Acctgroup => System Admin
    Scope     => LOCAL
    Status    =>  0

Deassigning App From Profile :
    Profilename  => SA Default
    Profilescope => LOCAL
    Applabel     => Start CALC Server
    Acctgroup => System Admin
    Status    =>  0


Deleting Application Data :
    Applabel  => Start CALC Server
    Acctgroup => System Admin
    Scope     => LOCAL
    Status    =>  0
```

These messages indicate that the icon entries are being deassigned from their profile (in this case SA_Default) and then removed from the Security Database. These entries create the icons used to activate the CALC server and client, if these entries are not removed then the icons will remain in the Application Manager even after the application is deinstalled. So it is best to go ahead and remove them as the segment is deinstalled rather than worry about them later.

7.3 Version Discrepancy

There is a discrepancy in the date of the VERSION file of the SegDescrip directory. The date reads 10/31/96 but it should read 3/7/97.